



## UNITED STATES PATENT AND TRADEMARK OFFICE

cn  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,750	10/18/2005	Fusao Sekiguchi	KWM-0016	6127
23353	7590	02/21/2007	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			KARACSONY, ROBERT	
			ART UNIT	PAPER NUMBER
			2821	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/21/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/553,750	SEKIGUCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Robert Karacsony	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 18 October 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-7 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-7 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 18 October 2005 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
     Paper No(s)/Mail Date 10182005.

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### *Claim Objections*

1. Claim 7 objected to because of the following informalities: Applicant recites, “The portable wireless device according to claim 6, wherein ... *phases, each other*”. It is unclear what applicant means by this. For examination purposes, the examiner interprets the claim to read “The portable wireless device according to claim 6, wherein ... *phases of each other*”. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egashira (JP 10-209897 A, hereafter Egashira) in view of F. E. Ireland (US 3,474,453, hereafter Ireland).

Claim 1: Egashira teaches a variable tuning antenna comprising:  
a radiation element (41); and  
a tuning circuit (30) connected to the radiation element in series (fig. 3), the tuning circuit comprising a first inductance element (43).

wherein the tuning circuit is formed so as to be tunable in the desired frequency band by varying the capacitance of the variable capacitance element (Abstract, 32 and 33).

Egashira fails to teach a parallel circuit which is connected to the first inductance element in series, the parallel circuit comprising a second inductance element and a variable capacitance element connected to each other in parallel. However, Ireland teaches a suitable tuning means comprising a variable capacitor connected in parallel with an inductor (Abstract). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the LC series resonance circuit of Egashira with the parallel LC circuit of Ireland with a reasonable expectation of success.

If the modifications discussed above were made to the invention of Egashira, one with ordinary skill in the art would have realized that the teachings of Egashira would have still applied to the modified invention, with a reasonable expectation of success, that the tuning circuit is set so that a combined reactance of the radiation element and the first inductance element and a combined reactance of the parallel circuit can be canceled by each other, and the parallel circuit does not resonate in a desired receiving frequency band (Abstract; desired frequency band being the frequency band associated with predetermined values of the tuning circuit).

Claim 2: Egashira teaches the variable capacitance element comprises two variable capacitance diodes (32 and 33), the two variable capacitance diodes being connected in series in reverse polarity (fig. 3), and having a terminal of a control voltage ( $V_T$ ) connected to a connecting part (P) of the two variable capacitance diodes (fig. 3).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egashira in view of Ireland as applied to claim 1 above, and further in view of Kanayama et al. (US 5,861,859, hereafter Kanayama).

Claim 3: Egashira in view of Ireland teach all of the limitations of claim 1, as discussed above. They fail to teach the radiation element comprises a first antenna element and a second antenna element connected to each other electrically in series, the first antenna element and the second antenna element being formed in an electric length so as to resonate at a frequency within the desired frequency band by the total length, and so as to resonate at a first frequency band of a wide band in the desired frequency band with the tuning circuit, and so as to resonate at a second frequency band by only the first antenna element. However, Kanayama teaches a retractable antenna for a portable radio, with a reduced size, made up of a helical antenna electrically connected in series to the top end of a rod antenna, which both of their lengths combined, resonate together at a frequency of a wide band (which the tuning circuit of Egashira in view of Ireland will contribute to the resonance frequency) when the antenna is extended out of a case and where only the helical antenna resonates at another frequency when the antenna is retracted into a case (col. 1/lines 10-39). Egashira teaches its antenna to be widely used in portable devices [0001]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the antenna of Kanayama as the radiating element of Egashira in order to have reduced the size of the antenna.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egashira in view of Ireland and Kanayama as applied to claim 3 above, and further in view of Thompson (US 6,433,749, hereafter Thompson).

Claim 4: Egashira in view of Ireland and Kanayama teach all of the limitations of claim 3, as discussed above. They fail to teach the first frequency band is a frequency band of a digital TV. However, Thompson teaches that it is suitable to use antennas to receive and/or transmit digital television signals (col. 2/lines 11-19). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have tuned the antenna of Egashira in the frequency band of digital television with a reasonable expectation of success.

5. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egashira in view of Ireland and Kanayama as applied to claim 3 above, and further in view of Makino (US 5,446,469, hereafter Makino).

Claim 5: Egashira in view of Ireland and Kanayama teach all of the limitations of claim 3, as discussed above. They fail to teach a portable wireless device comprising:

- a transmitting/receiving circuit ;
- a casing surrounding the transmitting/receiving circuit;
- a feeding part located near to the casing and connected to the transmitting/receiving circuit electrically;
- a third antenna element connected to the feeding part,

wherein the variable tuning antenna comprises any one of the antenna defined in claims 1 to 4, and the third antenna element comprises an antenna resonating at a third frequency band different from that of the variable tuning antenna, so that two frequency

bands of a first frequency band of a wide band obtained by the variable tuning antenna and the third frequency band can be transmitted and received.

However, Makino teaches a portable cellular phone (col. 1/lines 8-10) comprising a radio circuit (Abstract), a case surrounding the radio circuit (fig. 1A, 5), a point near the casing where the antenna connects to a radio circuit (fig. 1A) and a helical antenna element (6) attached to the top of the phone case and connected to the point that connects the radio circuit that is capacitively coupled (col. 1/lines 36-38) to a whip antenna (1) that extends/retracts through the helical antenna (figs. 1A and 1B) which increases the frequency band width (col. 3/lines 1-5). The helical antenna has a resonance frequency different from that of the variable tuning antenna, which is determined by the parameters of the helical antenna, whereas the variable tuning antenna resonates at a frequency determined by its parameters. When the whip antenna is extended out of the casing, it transmits/receives together with the helical antenna. When it is retracted into the casing only the helical antenna transmits/receives (col. 2/lines 13-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the variable tuning antenna of Egashira in view of Ireland and Kanayama with the portable cellular phone of Makino in order to have increased the frequency band width of the device.

Claim 6: Claim 6 is rejected for substantially the same reasons as claims 3 and 5, as discussed above.

Claim 7: Egashira in view of Ireland, Kanayama and Makino teach the variable tuning antenna extending/retracting in and out of the case, which when it is retracted into the case, the first and third antenna will form an electrical length so as to resonate at the

Art Unit: 2821

same frequency band and also strengthen radio waves transmitted and received in phases of each other (Makino, col. 3/lines 37-46).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Karacsony whose telephone number is 571-270-1268. The examiner can normally be reached on M-F 7:30-5 EST with alternating Friday's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Douglas K. Owens 2/2/07*

RK RK

DOUGLAS W. OWENS  
PRIMARY EXAMINER